

**Summary of Illness/Injury Incidents  
Reported by Physicians as Potentially Related to Pesticide Exposure  
Summarized by County of Occurrence<sup>1</sup>  
1999**

COUNTY <sup>2</sup> / Relationship <sup>3</sup>	TOTAL CASES	Type Of Exposure <sup>4</sup>				Intended Use <sup>5</sup>	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
ALAMEDA							
Definite	3	2	0	0	1	0	3
Probable	9	3	5	0	1	0	9
Possible	6	1	1	2	2	0	6
Unlikely	1	0	1	0	0	0	1
Asymptomatic	4	1	1	0	2	0	4
Unrelated	8						
Unavailable	1						
AMADOR							
Probable	1	0	0	1	0	1	0
Unrelated	1						
BUTTE							
Definite	3	2	0	0	1	0	3
Probable	5	0	3	2	0	0	5
Possible	9	0	1	8	0	0	9
Unrelated	2						
Unavailable	3						
CALAVERAS							
Definite	1	1	0	0	0	0	1
Probable	2	0	1	1	0	0	2
Possible	1	0	0	0	1	0	1
COLUSA							
Definite	1	1	0	0	0	1	0
Probable	1	0	1	0	0	0	1
Possible	2	0	0	1	1	2	0
Unavailable	1						
CONTRA COSTA							
Definite	2	2	0	0	0	0	2
Probable	4	3	0	0	1	0	4
Possible	4	1	1	1	1	0	4
Unlikely	1	0	1	0	0	0	1
Unrelated	4						
Unavailable	2						
DEL NORTE							
Probable	1	1	0	0	0	0	1
Unrelated	1						
EL DORADO							
Probable	1	1	0	0	0	0	1

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
FRESNO							
Definite	24	8	15	0	1	14	10
Probable	54	8	32	9	5	33	21
Possible	28	2	3	9	14	22	6
Unlikely	7	0	1	3	3	5	2
Asymptomatic	10	1	5	3	1	7	3
Unrelated	13						
Insufficient	7						
Unavailable	5						
GLENN							
Probable	3	0	3	0	0	2	1
Possible	3	0	1	1	1	3	0
Unlikely	1	0	0	1	0	1	0
Unrelated	1						
HUMBOLDT							
Definite	1	1	0	0	0	0	1
Probable	1	0	0	1	0	0	1
Possible	3	0	1	1	1	1	2
Unrelated	3						
Unavailable	2						
IMPERIAL							
Probable	4	1	3	0	0	4	0
Asymptomatic	1	0	1	0	0	1	0
Unrelated	2						
KERN							
Definite	4	2	1	0	1	1	3
Probable	36	11	19	5	1	31	5
Possible	14	2	6	6	0	12	2
Unlikely	1	0	0	0	1	1	0
Asymptomatic	3	2	0	1	0	2	1
Indirect	1						
Unrelated	7						
Unavailable	1						
KINGS							
Probable	11	1	0	8	2	10	1
Possible	4	0	1	1	2	4	0
Asymptomatic	2	1	1	0	0	2	0
Unrelated	1						
LAKE							
Definite	1	1	0	0	0	0	1
Probable	1	0	1	0	0	1	0
Unavailable	1						

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
LASSEN							
Definite	1	1	0	0	0	0	1
Probable	1	0	0	0	1	0	1
Unrelated	2						
LOS ANGELES							
Definite	29	20	2	1	6	1	28
Probable	40	6	13	11	10	0	40
Possible	10	1	3	4	2	1	9
Unlikely	3	0	1	2	0	0	3
Asymptomatic	1	1	0	0	0	0	1
Unrelated	19						
Insufficient	1						
Unavailable	9						
MADERA							
Probable	17	2	14	0	1	14	3
Possible	7	0	0	4	3	6	1
Unlikely	2	0	0	0	2	2	0
Asymptomatic	18	1	17	0	0	17	1
Unrelated	2						
Insufficient	1						
Unavailable	15						
MARIN							
Definite	5	3	1	1	0	0	5
Probable	13	1	4	8	0	0	13
Unlikely	1	0	0	1	0	0	1
Unrelated	4						
MARIPOSA							
Probable	1	0	1	0	0	0	1
Unavailable	1						
MENDOCINO							
Probable	1	1	0	0	0	0	1
Possible	2	0	0	1	1	2	0
Unlikely	1	0	0	1	0	1	0
Unrelated	1						
MERCED							
Definite	5	3	1	0	1	3	2
Probable	5	1	4	0	0	0	5
Possible	11	0	4	6	1	11	0
Unlikely	3	0	0	3	0	2	1
Indirect	1						
Unrelated	7						

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
MODOC							
Unlikely	1	0	1	0	0	1	0
MONTEREY							
Definite	5	3	2	0	0	3	2
Probable	18	1	10	7	0	9	9
Possible	11	0	5	2	4	9	2
Asymptomatic	1	1	0	0	0	0	1
Unrelated	3						
Unavailable	3						
NAPA							
Definite	2	1	0	1	0	0	2
Probable	2	2	0	0	0	1	1
Possible	4	0	0	3	1	3	1
Unlikely	1	0	0	0	1	1	0
Unrelated	2						
Unavailable	2						
NEVADA							
Definite	1	1	0	0	0	0	1
Unlikely	1	0	1	0	0	1	0
Unrelated	2						
ORANGE							
Definite	12	7	1	0	4	0	12
Probable	26	7	9	6	4	1	25
Possible	11	0	3	7	1	1	10
Unlikely	1	0	0	1	0	1	0
Indirect	1						
Unrelated	5						
Unavailable	9						
PLACER							
Probable	1	0	0	1	0	0	1
Possible	4	1	0	1	2	0	4
Unrelated	2						
PLUMAS							
Definite	1	1	0	0	0	0	1

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
RIVERSIDE							
Definite	8	8	0	0	0	2	6
Probable	12	3	5	1	3	3	9
Possible	8	1	0	1	6	6	2
Unlikely	1	0	0	1	0	0	1
Asymptomatic	13	1	0	0	12	12	1
Unrelated	6						
Unavailable	1						
SACRAMENTO							
Definite	8	5	3	0	0	0	8
Probable	17	3	10	2	2	0	17
Possible	7	1	1	5	0	3	4
Unlikely	2	0	1	1	0	0	2
Asymptomatic	1	0	0	1	0	0	1
Indirect	1						
Unrelated	6						
Insufficient	2						
Unavailable	1						
SAN BENITO							
Possible	20	0	20	0	0	20	0
SAN BERNARDINO							
Definite	5	4	1	0	0	0	5
Probable	28	4	4	15	5	0	28
Possible	5	1	1	2	1	0	5
Unlikely	1	0	0	0	1	0	1
Asymptomatic	1	1	0	0	0	0	1
Unrelated	14						
Unavailable	4						
SAN DIEGO							
Definite	13	10	2	0	1	0	13
Probable	79	4	58	6	11	53	26
Possible	74	1	66	5	2	3	71
Unlikely	2	0	0	2	0	0	2
Asymptomatic	2	0	2	0	0	2	0
Unrelated	5						
Insufficient	17						
Unavailable	3						
SAN FRANCISCO							
Definite	1	1	0	0	0	0	1
Probable	5	1	0	1	3	0	5
Possible	1	0	0	1	0	0	1
Unrelated	1						
Unavailable	2						

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
SAN JOAQUIN							
Definite	8	6	0	0	2	1	7
Probable	13	4	5	0	4	2	11
Possible	11	1	1	3	6	6	5
Asymptomatic	11	1	0	0	10	1	10
Unrelated	11						
Insufficient	1						
Unavailable	2						
SAN LUIS OBISPO							
Definite	1	1	0	0	0	0	1
Probable	2	0	1	0	1	0	2
Possible	2	1	0	1	0	0	2
Unrelated	1						
SAN MATEO							
Definite	3	2	0	0	1	0	3
Probable	7	3	3	1	0	2	5
Possible	5	0	0	5	0	3	2
Asymptomatic	1	0	1	0	0	0	1
Unrelated	7						
Unavailable	2						
SANTA BARBARA							
Definite	3	3	0	0	0	2	1
Probable	8	1	7	0	0	7	1
Possible	6	1	3	2	0	4	2
Unrelated	4						
SANTA CLARA							
Definite	7	6	1	0	0	0	7
Probable	32	5	5	18	4	0	32
Possible	8	0	3	3	2	1	7
Asymptomatic	2	1	0	0	1	0	2
Unrelated	11						
Unavailable	1						
SANTA CRUZ							
Definite	2	1	0	0	1	0	2
Probable	2	1	1	0	0	2	0
Possible	7	0	1	5	1	5	2
Asymptomatic	1	1	0	0	0	1	0
Unavailable	1						
SHASTA							
Probable	2	1	0	1	0	0	2
Possible	4	0	3	0	1	0	4
Unlikely	1	0	0	0	1	0	1

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
SISKIYOU							
Definite	2	2	0	0	0	0	2
Probable	1	0	0	1	0	0	1
Possible	1	0	1	0	0	0	1
SOLANO							
Definite	3	2	0	0	1	1	2
Probable	8	1	5	1	1	1	7
Possible	2	0	0	1	1	0	2
Unlikely	2	0	0	1	1	1	1
Unrelated	1						
Unavailable	3						
SONOMA							
Definite	6	5	0	0	1	2	4
Probable	2	0	1	0	1	0	2
Possible	11	1	0	6	4	8	3
Unrelated	4						
Insufficient	1						
STANISLAUS							
Definite	4	2	1	0	1	1	3
Probable	5	4	1	0	0	2	3
Possible	8	1	0	6	1	7	1
Unlikely	2	1	0	0	1	1	1
Asymptomatic	3	2	0	0	1	1	2
Unrelated	9						
Insufficient	1						
SUTTER							
Definite	1	1	0	0	0	0	1
Possible	1	0	0	0	1	1	0
Unrelated	1						
TEHAMA							
Unlikely	1	0	1	0	0	1	0
Insufficient	1						
TULARE							
Definite	11	11	0	0	0	5	6
Probable	149	4	141	3	1	144	5
Possible	44	0	34	7	3	42	2
Unlikely	1	0	0	1	0	1	0
Asymptomatic	2	1	1	0	0	2	0
Unrelated	10						
Insufficient	1						
Unavailable	7						

COUNTY/ Relationship	TOTAL CASES	Type Of Exposure				Intended Use	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
TUOLUMNE							
Definite	1	0	1	0	0	0	1
Probable	1	0	1	0	0	0	1
Unlikely	1	0	1	0	0	0	1
VENTURA							
Definite	5	3	0	0	2	0	5
Probable	1	1	0	0	0	0	1
Possible	5	1	2	0	2	3	2
Unlikely	1	0	0	1	0	0	1
Unrelated	1						
Unavailable	2						
YOLO							
Definite	2	2	0	0	0	0	2
Probable	2	1	1	0	0	1	1
Possible	7	2	0	1	4	5	2
Unlikely	3	0	0	1	2	2	1
Unrelated	3						
TOTALS							
Definite	195	135	32	3	25	37	158
Probable	635	91	372	110	62	324	311
Possible	371	20	166	112	73	194	177
Unlikely	43	1	9	20	13	22	21
Asymptomatic	77	16	29	5	27	48	29
Indirect	4						
Unrelated	187						
Insufficient	33						
Unavailable	84						
OVERALL	1629	263	608	251	203	628	697

1. **Source:** California Department of Pesticide Regulation, Pesticide Illness Surveillance Program.  
The term “potentially related to pesticide exposure” refers to all cases reported to the program, some of which were later determined to be unrelated to pesticide exposure.
2. **County:** Individual counties in California.



3. **Relationship:** Degree of correlation between pesticide exposure and resulting symptomatology.

Definite	: High degree of correlation between pattern of exposure and resulting symptomatology. Requires both medical evidence (such as measured cholinesterase inhibition, positive allergy tests, characteristic signs observed by medical professional) and physical evidence of exposure (environmental and/or biological samples, exposure history) to support the conclusions.
Probable	: Relatively high degree of correlation exists between the pattern of exposure and the resulting symptomatology. Either medical or physical evidence is inconclusive or unavailable.
Possible	: Some degree of correlation evident. Medical and physical evidence are inconclusive or unavailable.
Unlikely	: A correlation cannot be ruled out absolutely. Medical and/or physical evidence suggest a cause other than pesticide exposure.
Indirect	: Pesticide exposure is not responsible, but pesticide regulations or product label requirements contributed in some way, (e.g. heat stress while wearing chemical resistant clothing).
Asymptomatic	: Exposure occurred, but did not result in illness/injury. Cholinesterase depression without symptoms falls in this category.
Unrelated	: Definite evidence of cause other than pesticide exposure including exposures to chemicals other than pesticides. Since there is no exposure to pesticides, there are no entries under "Type of Exposure" or "Intended Use."
Insufficient	: The available information is inadequate to make an informed judgment on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator failed to make an adequate attempt to obtain the necessary information. Since a relationship to pesticide exposure cannot be determined, there are no entries under "Type of Exposure" or "Intended Use."
Unavailable	: The available information is inadequate to make an informed judgement on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator made an adequate attempt to collect the necessary information, but was not able to do so (e.g., none of the parties concerned could be contacted). There usually needs to be more effort than to say the employee is not available for interview; other parties can often supply useful information. Since a relationship to pesticide exposure cannot be determined, there are no entries under "Type of Exposure" or "Intended Use."

4. **Type of Exposure:** Characterization of how an individual came in contact with a pesticide.

Direct Contact	: An appreciable amount of pesticide contacted the individual's body surface. This includes: 1) sprays or squirts from application equipment; 2) leaks or spills whether or not related to the application; and 3) deliberate immersion (as when cleaning implements in a basin with antimicrobials). This excludes drift exposures.
Drift	: Spray, mist, fumes, or odor carried from the target site by air. Drift must be related to an application or mix/load activity.
Residue	: The part of a pesticide that remains in the environment for a period of time following an application or drift. This includes odor after the completion of an application.
Other/Unknown	: Any of the following: 1) ingestion; 2) multiple routes of exposure; 3) residue from a spill; 4) exposure to smoke or pyrolytic products from a fire where pesticides are burning; 5) route of exposure is not known.

5. **Intended Use:** Agricultural/Non-Agricultural - Indicates whether the suspected pesticide(s) is intended to contribute to the production of agricultural commodities.

- Agricultural : The suspected pesticide(s) is intended to contribute to the production of agricultural commodities, including livestock. This includes the following:
- 1) handling of raw agricultural commodities in the packing house,
  - 2) agriculture/urban interfaces including agricultural pesticides drifting into non-agricultural areas such as residences, and 3) transportation and storage of pesticides on farm lands. This excludes the following situations that are classified as agricultural for regulatory purposes: 1) forestry operations,
  - 2) rights-of-way and 3) landscaped parks.
- Non-Agricultural : The suspected pesticide(s) is not intended to contribute to the production of agricultural commodities. This includes, but is not limited to the following:
- 1) residential pesticide uses, 2) structural pest control, 3) rights-of- way,
  - 4) parks, 5) landscaped urban areas, and 6) transportation and storage of pesticides except on farm lands. This excludes agriculture/urban interfaces.
- Not Applicable : No pesticide involved.

**Whom to Contact:**

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**About the Pesticide Illness Surveillance Program Data**

Pesticide-related illnesses have been tracked within the state of California for nearly 50 years. The California Environmental Protection Agency, Department of Pesticide Regulation (DPR) maintains a surveillance program which records human health effects of pesticide exposure. The Pesticide Illness Surveillance Program (PISP) documents information on adverse effects from pesticide products, whether elicited by the active ingredients, inert ingredients, impurities, or breakdown products. This program maintains a database, which is utilized for evaluating the circumstances of pesticide exposures resulting in illness. This database is consulted regularly by staff who evaluate(s) the effectiveness of the DPR pesticide safety programs and recommend changes when appropriate.